SP1.7
SERIES

BRYSTON

INSTRUCTIONS FOR BRYSTON SP1.7 PRECISION PREAMPLIFIER/PROCESSOR

IMPORTANT SAFETY INSTRUCTIONS

The lightning flash with arrowhead symbol within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage " within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

DO NOT EXPOSE THIS EQUIPMENT TO DRIPPING OR SPLASHING AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, ARE PLACED ON THE EQUIPMENT.

TO COMPLETELY DISCONNECT THIS EQUIPMENT FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

THE MAINS PLUG OF THE POWER SUPPLY CORD SHALL REMAIN READILY OPERABLE.

BRYSTON LIMITED WARRANTY

Bryston analog audio circuits are warranted to be free from manufacturing defects for twenty (20) years from the original date of manufacture. The warranty includes parts and labour.

Bryston Digital circuits and cables are warranted for five years from the original date of manufacture. The warranty includes parts and labour.

Bryston products having motorized moving parts, excluding motorized volume controls, are warranted for three years from the original date of manufacture. The warranty includes parts and labour.

Bryston will remedy the problem by repair or replacement, as we deem necessary, to restore the product to full performance. Bryston will pay return shipping during the first three years of warranty coverage.

The warranty is fully transferable to the original owner and all subsequent owners during the warranty period. Warranty coverage is automatic and commences with the original date of manufacture which is kept on file at Bryston. In the event of a defect or malfunction, contact Bryston's repair centers for return authorization. Products must be returned using original packaging material only. Packing material may be purchased from Bryston if necessary. This warranty is considered void if the defect, malfunction or failure of the product or any component part was caused by damage (not resulting from a defect or malfunction) or abuse while in the possession of the customer. Tampering by persons other than factory authorized service personnel or failure to fully comply with Bryston operating instructions voids the warranty. This warranty gives you specific legal rights and you may also have other rights which may vary from province to province and country to country.

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INTRODUCTION

Congratulations on your purchase of the Bryston SP1.7 pre-amplifier/processor. This product will provide you with the finest available signal control and DSP audio processing available. Like all Bryston products the SP1.7 has been carefully designed and engineered to deliver a lifetime of enjoyment.

The SP1.7 offers both pre-amplifier and digital decoding functions, and it is very important that you thoroughly read this manual BEFORE you install and use the SP1.7.

UNPACKING

Your SP1.7 was carefully packed at the factory to protect against any damage in shipping and handling. Carefully examine the packing and the unit for any signs of external damage or impact and report those to your dealer or Bryston prior to using the unit.

ACCESSORIES

In the carton you should have found the following accessories in addition to the SP1.7:

1 Bryston SP1.7 Instruction Manual
1 Bryston Safety Manual
1 IEC standard power cord
1 SP1.7 Infrared Remote Control unit with backlight and battery installed

It is VERY IMPORTANT that you read and completely understand the Bryston Safety Manual before installing or connecting the SP1.7 to any electrical power source.

SP1.7 FUNCTIONAL LAYOUT

Below is a block diagram of the Bryston SP1.7. It shows the signal flow and basic operational structure of the Surround Processor and Preamplifier.

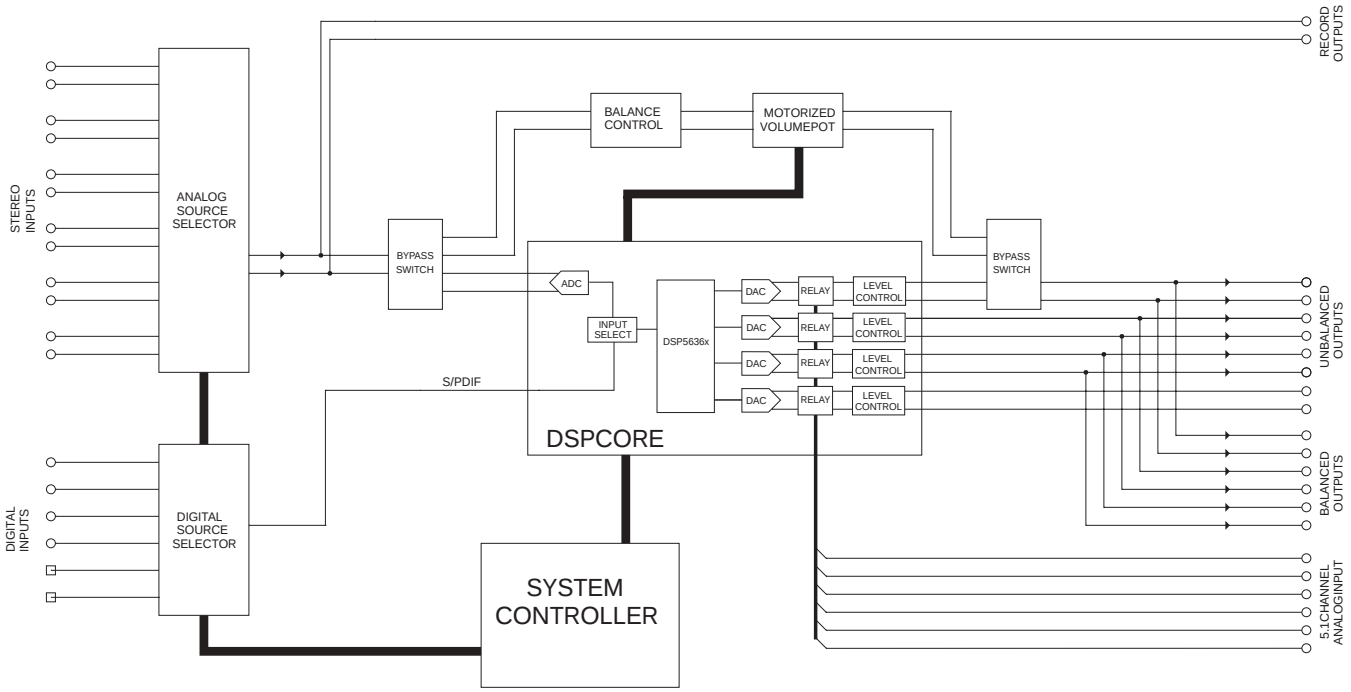


Figure 1: Block Diagram

POWER

The SP1.7 uses a dual mode electrical power system. In the electrical power input module located on the right hand side of the rear panel, adjacent to the IEC power cord socket is a large computer-style switch that controls the main electrical power to the unit. This is the ONLY switch that actually completely turns off all power to the unit. Please see the illustration adjacent.

Figure 2: Power Input Mode

When the SP1.7 is connected to an appropriate AC power source, and the power switch is switched to the 'I' position, the unit automatically sets itself into a STANDBY power mode, where-in only the minimum necessary circuitry to respond to the remote control's power-on command or the momentary power toggle switch on the front panel are active. The RED standby LED on the front panel illuminates.

Activating the momentary POWER toggle switch (either up or down) on the front panel or the POWER button on the remote immediately takes the unit out of its STANDBY mode into its normal operating mode.

The presence of AC power to the SP1.7 is indicated by the illumination of the front panel LCD display, the illumination of the LED corresponding to the source you last selected, and the units LED operating mode indicators.

NOTE: If your unit's LCD backlight does not illuminate when the SP1.7 is plugged into an operating outlet, and switched out of STANDBY mode, please check to see that the rear panel main power switch {mains switch} is in the ON position.

If the SP1.7 is to be unused for an extended period of time (i.e. a vacation) it is strongly recommended that it be turned off using the main power switch on the back panel.

FRONT PANEL CONTROLS AND INDICATORS

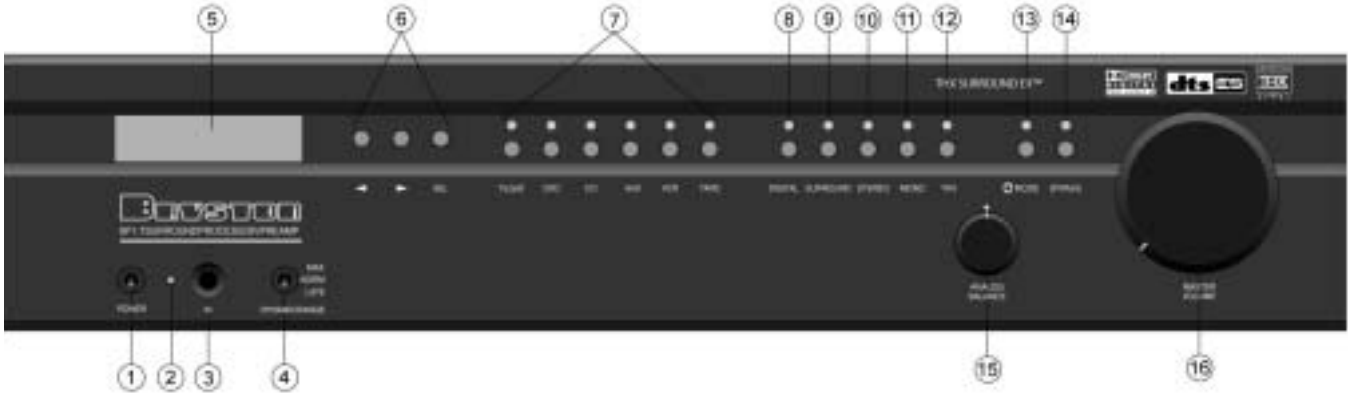


Figure 3: Front Panel

When looking at the front panel of the SP1.7 you will see the following controls and displays from left to right:

1. Power [Momentary Switch]

Toggling this switch up or down takes the unit in and out of its' Standby power mode.

2. Standby and (IR) Infrared Activity Indicator

If this LED is continuously red, it is an indication that the SP1 is in Standby mode. When the SP1.7 is powered up, the LED is OFF, and flashes (Red) when a valid IR code is detected.

3. (IR) Infrared Receiver/Sensor for remote control

4. Dynamic Range Control

This three position switch permits the adjustment of the dynamic range (softest sound to loudest sound) of signal sources producing a Dolby Digital or DTS encoded bitstream. The Dynamic Range Control has no effect with PCM and Analog input signals.

USING THE DYNAMIC RANGE CONTROL

For the majority of applications this switch should be placed and remain in the middle or NORM position.

For late night viewing or at any time you wish to reduce the overall dynamic range of a program the switch may be set to the "LATE" (down) position.

If you wish to turn off all of the software's built-in dynamic range management functions the switch can be set to the "MAX" (up) position.

NOTE: Caution should be exercised when choosing this option. Many smaller loudspeaker systems cannot handle the extremely wide range signals produced in this mode. Overall system volume should be initially set quite low until you or your dealer are able to determine the maximum safe setting to avoid damage to your loudspeaker systems or power amplifiers.

5. LCD Display window

Contains the two line, black on green 16 character per line alphanumeric display which indicates the status and functional mode of the SP1.7. This screen is also used during the menu-setup function for calibration of the SP1 to your system. If connected to the Bryston SPV-1 Video Switcher, the menu-setup and status display will also be available on your video monitor with On-Screen Display (OSD).

On the first line, the decoding type [Dolby Digital, DTS, Pro-Logic, Music, etc.] is displayed. A sample screen is shown below:

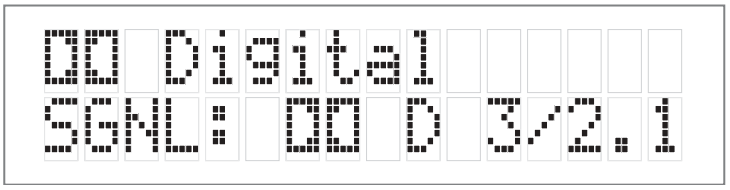


Figure 4: Status display showing Dolby Digital 5.1 channel signal at input

On the second line, the type of signal being detected from the currently selected input is displayed. A sample screen is shown below:

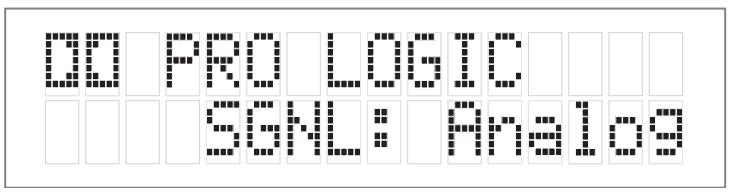
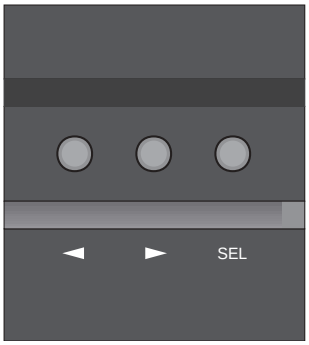


Figure 5: Status display showing analog input signal and Pro Logic decoding

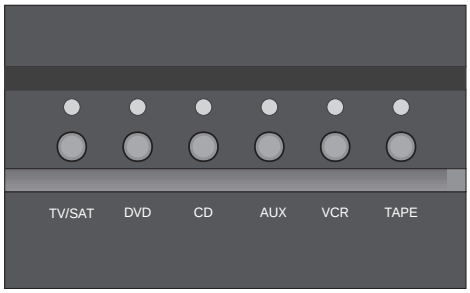


6. Menu Control Buttons

These three buttons labeled “<”, “>”, and “SEL” (SELECT) are used to control the menu/setup functions displayed on the LCD. To enter a menu mode, you can press any one of these buttons. This will bring up the main menu.

Navigating any menu or sub-menu is done using the two arrow (< >) buttons. Once the desired submenu or function is highlighted, pressing “SELECT” will make it the current menu or function.

To exit a menu, or back up a step use the arrow buttons (< >) to highlight the ‘X’ displayed in the lower right hand corner of the LCD window and press “SELECT”.



7.Source Selection Buttons and Indicators

Pressing any one of these buttons will instantly switch the SP1.7’s analog and digital inputs to read the indicated source.

If the SP1.7 is in its digital mode, as soon as any input is selected and switched, the decoder will automatically try to determine the new bitstream’s type and mode.

MODE SELECTION BUTTONS:

8. Digital Mode and Indicator

This button operates as a three-way toggle function. The LED immediately above the button has two colors - RED and GREEN, and an OFF mode where it is not illuminated.

When Digital Mode is selected, the decoder will automatically default to a digital signal for the selected input if one is present.

If a digital signal is present and detected, the SP1.7 will automatically determine the type of bitstream and select the proper decoding mode. The indicator LED will turn green when this happens.

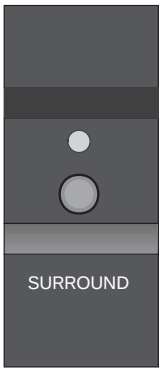
If NO DIGITAL SIGNAL is detected the SP1.7 will default back to the analog input for the selected source. This also automatically puts the SP1.7 into its Digital Standby Mode. When this occurs the LED indicator will turn RED

In this mode, the decoder will continually check the selected source inputs for the presence of a digital signal. If one is detected, the SP1.7 will automatically switch over to the pre-selected digital operation mode for that source.

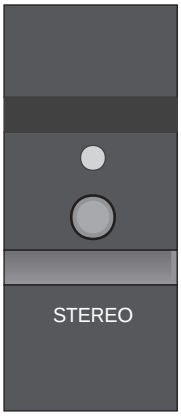
To defeat this auto-digital detect mode you must press the button again. If you do the LED will go OFF.

When this mode of operation is selected the SP1.7 will look at ONLY its analog inputs. If a digital signal does appear the SP1.7 will NOT recognize it and will remain in its analog only mode until you press the Digital button again to either select the digital source or place the SP1.7 into its auto detect mode as explained above.

9. Surround Button



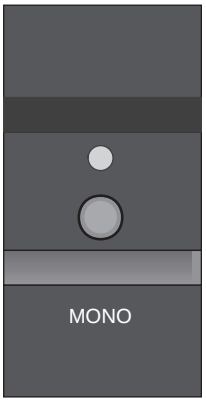
Pressing this button will engage the SP1.7's surround listening mode. When this function is operational the LED will turn green. For Dolby Digital 5.1, DTS 5.1, and DTS-ES 6.1 bitstreams, the signal will be decoded and presented with no additional post-processing. For 2-channel source material, the SP1 will synthesize surround information based on the chosen Surround Mode (see 31. for Surround Mode information).



10. Stereo and Stereo Downmix Mode

If this button is selected and the supplied bitstream is more than 2 channels, the decoder will automatically implement a stereo downmix. Otherwise, analog or digital two channel signals are passed as conventional stereo.

11. Mono and Mono Downmix Modes



If this button is selected and the supplied bitstream is more than 1 channel, the SP1.7 software will create a Mono mix of all signals. If the centre channel is present, the Mono signal will appear in the centre channel. If no centre channel is present, the mono signal will appear simultaneously on the Left/Right speakers.

NOTE: Downmix [stereo or mono] is a software based automatic mixing function available within the SP1.7. This process exists because whenever the number of active decoder outputs or loudspeakers selected in setup is less than the number of channels in the Dolby Digital program, some channel combining will be necessary to present the program on the available number of channels/loudspeakers.

As a part of any program's production, its producers can set and adjust the type and ratios allowed for downmixing somewhat to ensure optimum results without compromising the full Multichannel balance. This is accomplished by including specific data within the Dolby Digital bitstream which represents different mixing coefficients for the centre and surround channel signals.

These will be detected by the SP1.7 and used to produce the downmix if this mode is selected.

12. THX Button

Pressing this button will engage the SP1.7's default THX listening mode. The default mode is selected using the "EX Control" menu (see page 26).

NOTE: THX Surround EX™ decoding is only available in the THX listening mode.

If the "EX Control" Option is set to OFF, selecting this function (LED green) will automatically incorporate the THX post processing option for all surround modes. Dolby Digital 5.1, DTS 5.1 and DTS-ES 6.1 bitstreams will be decoded and presented with THX post-processing.

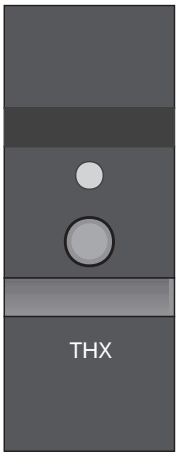
If the "EX Control" Option is set to ON, selecting this function (LED green) will engage THX Surround EX™ decoding for back channel speaker(s), and incorporate THX post processing, for Dolby Digital 5.1 bitstreams only. For DTS bitstreams, the signal will be decoded and presented with THX post-processing. THX Surround EX™ is only available if the back speakers are engaged. If THX Surround EX™ is unavailable, an error message will appear on the LCD.

If the "EX Control" Option is set to AUTO, selecting this function (LED illuminated) will engage THX Surround EX™ decoding only for bitstreams that are flagged as having EX encoded content.

NOTE: not all DVDs that are recorded with THX Surround EX contain this flag.

Pressing the THX button repeatedly will toggle between the ON and DISABLE settings for THX Surround EX™. The default THX mode will only be engaged when entering the THX mode from another listening mode (such as Surround or Stereo)

For 2-channel source material, the SP1.7 will synthesize surround information based on the chosen Surround Mode (see 31. for Surround Mode information), and add THX post-processing.

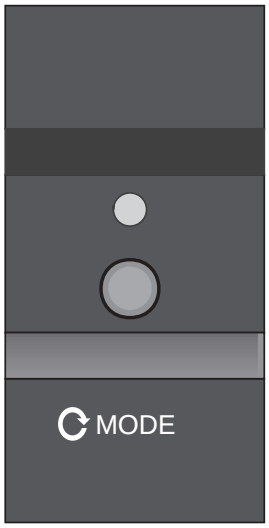


NOTE: If the THX listening mode is engaged, PLII Music and NEO:6 Music are not available, due to THX requirements.

(please SEE Appendix B FOR MORE Information about THX post processing)

13. ⟳ Mode Button

This button is used to select one of 13 effects for synthesizing surround sound with 2-channel source material. Pressing the button repeatedly will scroll through the modes:



Available with THX Listening Mode…

- PLII Film
- Pro Logic
- NEO:6 Cinema

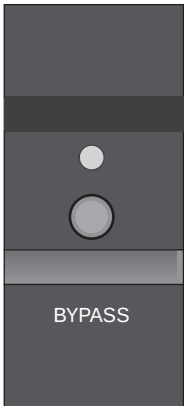
Available with Surround Listening Mode…

- PLII Film
- PLII Music
- Pro Logic
- NEO:6 Cinema
- NEO:6 Music
- Stereo5
- Party
- Hall
- Stadium
- Club
- Theatre
- Church
- Natural

You can select a Surround Mode for the Surround or THX listening modes at any time, even if the effect is not immediately active (such as the case when a 5.1 channel bitstream is present). Two Surround Mode settings are memorized for each input – one associated with the Surround listening mode, and one associated with the THX listening mode.

14. Bypass Button

This button operates as a three way toggle function. The LED immediately above the button has two colors - RED and GREEN, and an OFF mode where it is not illuminated. The options are Bypass 2ch, Bypass 5.1ch, and Bypass Off.



Press the button once, and the unit goes in the Bypass 2ch mode. In this mode, the LED will be GREEN. In Bypass 2ch mode all of the DSP circuitry, DA and AD converters are bypassed, allowing a completely analog circuit path, identical to the reference standard Bryston BP-25 pre-amplifier. Only standard format Stereo operation is permitted in this mode - all other functions are disabled. The Front Panel Stereo Balance control now becomes active.

Press the button again, and the unit goes into Bypass 5.1ch mode. In this mode, the LED will be ORANGE. In Bypass 5.1ch mode, the signal from the 5.1 channel analog inputs (RCA) will be routed through the volume controls and to their respective outputs, balanced and unbalanced. No bass management is available with the 5.1ch bypass mode.

To defeat the Bypass mode, press the Bypass button again, and the LED will go OFF.

15. Analog Balance

This control governs the balance of the analog bypass circuit. It will only function if the SP1.7 is in Bypass 2ch mode.

16. Master Volume

This is the Large Knob located on the far right side of the front panel. It controls the Master Volume in all modes. It is fully motorized and can be operated from the remote control or by hand. It is the final level setting control on the SP1.7, and determines what output level will be supplied to the connected power amplifiers, but not the tape/recording outputs. It takes into account any speaker level trim adjustments made during the SP1.7's setup.

REAR PANEL INPUT AND OUTPUT CONNECTIONS

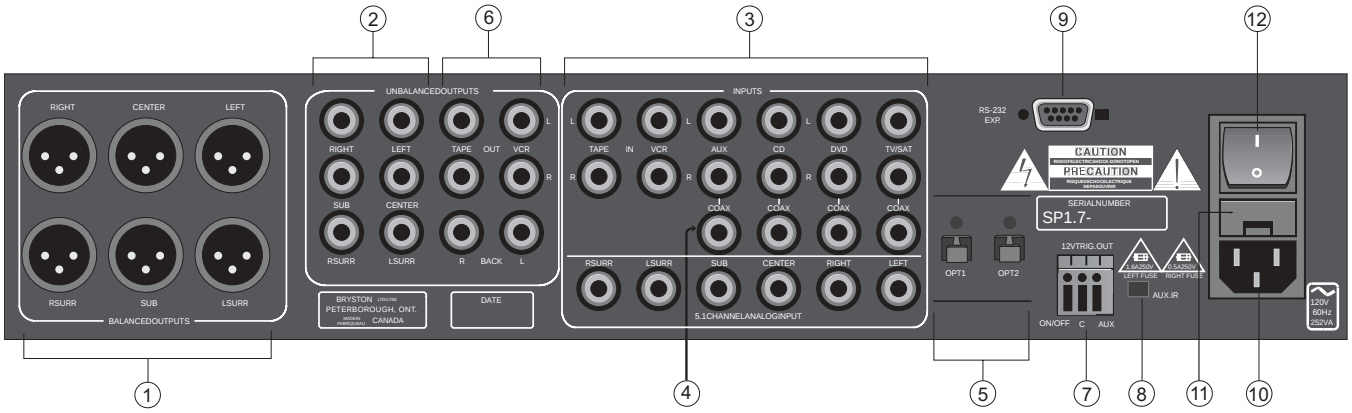


Figure 6: Rear Panel

1. Balanced and 2. Unbalanced Outputs

The SP1.7 offers both balanced (5.1) and unbalanced (7.1) outputs for power amplifiers or powered loudspeaker systems. The type you select to use will be determined by the input configuration of your amplifiers or self-powered loudspeakers.

NOTE: XLR and RCA connectors can be simultaneously utilized. (Example - Surround fill channels) Back channel(s) are only available from the RCA outputs.

3. Analog Inputs

A paired stereo analog input with gold RCA jacks (labeled L and R, for Left and Right) is provided for each source button on the front panel.
The sensitivity of these Inputs is set to the industry standard of 2 Vrms, which should accommodate the vast majority of available source components. In Bypass mode, the input sensitivity is equivalent to the BP-25 preamplifier.

A 5.1 channel analog input is also provided on 6 RCA connectors. This is typically used for Multi-channel DVD-Audio, SACD, or external processors. In Bypass 5.1ch mode, the signal from the 5.1 channel analog inputs (RCA) will be routed through the volume controls and to their respective outputs, balanced and unbalanced. No bass management is available with the 5.1ch bypass mode.

4. Digital Audio Coaxial Inputs

The TV/SAT, DVD, CD, and AUX front panel selectable sources are also supplied with a standard SPDIF gold RCA jack digital audio input. These four inputs will accept any standard SPDIF source including DAT, CDR and similar components.

5. TOSLINK Digital Audio Optical Inputs

The SP1.7 offers two assignable TOSLINK optical inputs. These can be designated to any input using the OS menu (“Other Settings”)on the LCD screen. Please note that if you choose to assign an optical input to an input with a coaxial input, the coaxial will be over-ridden and the optical input signal will be used by the SP1.7. The pro model replaces the two TOSLINK connectors with a single AES/EBU Digital connector.

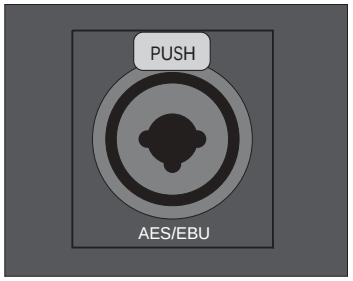


Figure 7: the AES/EBU Pro Digital XLR connector

Setting the Optical Audio Input Assignment

i. Enter the main menu by pressing on one of the menu buttons on the SP1 front panel. Move the cursor to “OS”. Hit ‘Select’ - You are now in the ‘Other Settings’(Optical/THX) Menu.

ii. Move the cursor to the Optical Input (OPT1 or OPT2) you want to change the input assignment for. Hit ‘Select’.

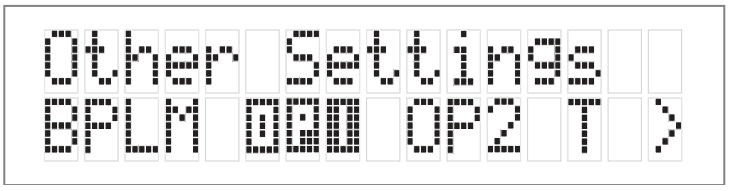


Figure 8: highlighting OP1 in the “Other Settings” menu

iii. Now you can assign the optical input to any one of the 6 inputs selectors. Doing this will override the digital coax connector on that input. Hit ‘Select’ when finished.

NOTE: On the pro model, ‘AES’ will show up in the ‘Other Settings’ Menu (instead of OPT1 and OPT2), to setup the AES/EBU input assignment.

6. Tape/Recording Outputs

The SP1.7 provides two analog outputs for the TAPE and VCR sources. The front panel selected input signal is always routed to these tape outputs, except when TAPE or VCR is selected. In those cases the appropriate output is automatically muted to prevent feedback.

7. Remote 12V Trigger Outputs

Two trigger outputs are provided. The output labeled “ON/OFF” provides a 12V voltage level whenever the unit is fully powered up. When the unit goes into standby, the level is 0 Volts.
The output labeled “AUX” is programmable from the LCD menu as described below. This means that the terminal supplies the 12-Volt signal only when you switch to certain, specified inputs.
The Centre (Common or Ground) terminal is always used with the “ON/OFF” or “AUX” terminals to complete the circuit loop. The 12-Volt connector will accept 1/4 - inch stripped wire ends, inserted into the square holes provided, and the adjacent screws carefully tightened to hold them in place.
These can be used to control any Bryston Power amplifier and many other components such as motorized screens and drapes. Be sure to determine what type of trigger signal the selected components requires and what function will be enabled by the trigger signal’s voltage.

Programming the AUX Trigger Output

i. Enter the main menu by pressing on one of the menu buttons on the SP1 front panel. Move the cursor to “OS”. Hit ‘Select’ - You are now in the Other Settings (Optical/THX) Menu.

ii. Move the cursor to “T”. (T = Trigger) Hit ‘Select’. Now you can assign the AUX Trigger output to ON or OFF, for each of the 6 input sources.

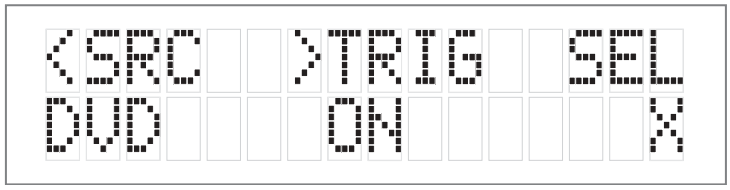


Figure 9: Trigger Assign Menu

iii. To change the source, use the “<” button. To toggle the trigger setting On or Off, use the “>” button. Hit ‘Select’ to exit when finished.

8. Aux IR Receiver

The Aux IR Input is a miniature mono phone jack connector. This is used to connect externally mounted IR LED receivers, or other extenders that provide modulated IR receiver data. Data is retransmitted by an IR LED mounted near the front panel IR receiver.

9. RS-232 connector

This connection provides for control of a Bryston SPV-1 video switcher, or remote control of the SP1.7 functions via a computer interface or AMX/Crestron type controller. Please contact your dealer or Bryston to make use of this optional feature and determine which devices are compatible.

10. IEC Power Connector

11. Fuses

Please note that the Analog and Digital power supplies are fused separately. Replace fuses ONLY with an exact equivalent to avoid damage to the SP1.7.

12. Master Power Switch

THE SP1.7 REMOTE CONTROL

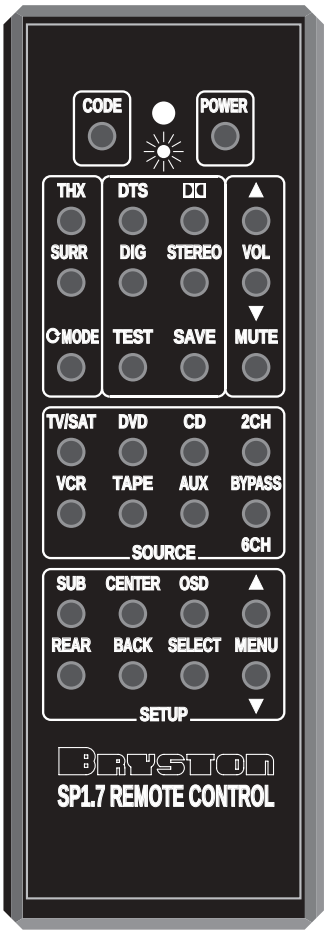


Figure 10: SP1.7 Remote Control

The SP1.7 from the Remote Control can operate all front panel operations, with the addition of several functions. By pressing the CODE button, the remote is also capable of sending up to 255 discrete or hidden codes, for teaching universal remotes and other IR based control systems.

On the remote, some buttons double as number buttons for sending discrete/hidden codes. They are:

CODE	Activates discrete send mode
MUTE	0
THX	1
DTS	2
DOLBY	3
SURR	4
DIG	5
STEREO	6
MODE	7
TEST	8
SAVE	9

1. Source Select Buttons

These buttons are used to select the desired source. TV/SAT, DVD, CD, AUX, VCR, and TAPE function exactly like their corresponding buttons on the SP1.7 front panel.

2. Bypass Buttons

To use the 5.1 channel analog input, press the 6CH BYPASS button. To go back to the previous selected source, press the 6CH BYPASS button again. To use the Stereo Bypass mode for the currently selected source, press the 2CH BYPASS button. To go back to the previous selected mode, press the 2CH BYPASS button again.

3. Mode Select Buttons

These buttons (THX, SURR, DIG, STEREO, ↻ MODE) are used to change the SP1.7 decoding mode, and function exactly like their equivalent buttons on the front panel.

4. Mute Button

Pressing this button will fully mute the output of the SP1.7.

5. Volume/Trim Buttons

These buttons increase and decrease the master volume. When the SP1.7 is in its Test/Noise mode, these buttons are used to adjust the level trim for each individual speaker.

6. Test Button

If pressed for more than 3 seconds, the SP1.7 will enter the Test/Noise mode. Please see Page 18 for more details on this mode.

7. Power Button

Pressing this button will toggle the SP1.7 in and out of the Standby power mode.
{Installers: please contact Bryston technical support for information about Discrete On/Off control}

8. Save Button

Pressing this button will memorize settings for the current input, as described in “Saved Settings per Source” on page 19.

9. DTS Button

Pressing this button toggles between the DTS Music mode, and the DTS Movie mode. These modes are used ONLY when a DTS bitstream is detected. The DTS Music mode is optimized to provide proper playback of DTS encoded musical material from DVD, LD or CD sources. DTS Movie is available for playback of DTS encoded motion picture soundtracks from DVD or LD sources. Each mode has an optimized bass management setting in accordance with the DTS program material.

10. Dolby DD Button

Pressing this button will engage the Dolby PLII Film mode for any 2 channel sources (PCM, Dolby Digital, or Analog).

11. Setup Buttons

These include SUB, CENTER, OSD, REAR, BACK, SELECT and MENU/UP/DOWN.

All of these setup functions can be accessed while listening to movies or music.

The MENU/UP/DOWN buttons, and the SELECT button function like their corresponding buttons on the SP1.7 front panel. To enter the menu mode, press any one of these buttons. If OSD is ON, you will see the menu on your video monitor.

Pressing the OSD (On-Screen Display) Button will toggle the OSD function on and off, on your video monitor, if you are using the Bryston SPV-1 video switcher.

Pressing the SUB button will engage the menu for the volume trim level of the subwoofer channel. Use the MENU/UP/DOWN button to change the subwoofer channel level up or down. Press SELECT when finished.

Pressing the CENTER button will engage the menu for the volume trim level of the center channel. Use the MENU/UP/DOWN button to change the center channel level up or down. Press SELECT when finished.

Pressing the REAR button will engage the menu for the volume trim level of the rear channels. Use the MENU/UP/DOWN button to change the rear channel levels up or down. Press SELECT when finished.

Pressing the BACK button will engage the menu for the volume trim level of the back channel(s). Use the MENU/UP/DOWN button to change the back channel level(s) up or down. Press SELECT when finished.

12. Status LED

Indicates remote control status while accessing discrete/hidden functions, and changing remote options. Contact the factory for details.

13. Photo Sensor

Works in conjunction with the backlight and tilt switch to determine if backlighting is needed.

NOTE: To enable or disable the backlight in the remote control, follow this procedure:

i. Press CODE button for 5 seconds
ii. LED will flash red, then release button
iii. Type in 3 digit code 792 = MODE / SAVE / DTS
iv. LED will flash again to confirm

To send discrete/hidden Code…

i. Press CODE button and release
ii. LED will illuminate (Red)
iii. Type in 3 digit code (a combination of mode buttons)
iv. LED will flash again to confirm and go out.

For a list of hidden codes, visit the Bryston Website at www.bryston.ca

SET UP and CALIBRATION OF THE SP1.7

NOTE: In most operating menu modes the last segment of line 2 of the display will either show an "X" for EXIT, or an ">" (arrow) to indicate more menu items. (sample screens are shown below - fig 11,12). Choosing (highlighting) the "X" position in the display and pressing the Select button (see below) will "EXIT" back to the previous menu, or exit the menu mode entirely. If an ">" appears, continue pressing the menu navigation arrow buttons to reveal more menu options.

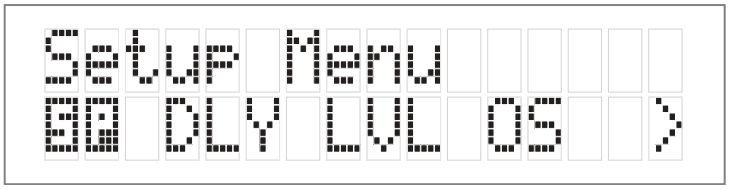


Figure 11: Arrow direction indicates more menu items

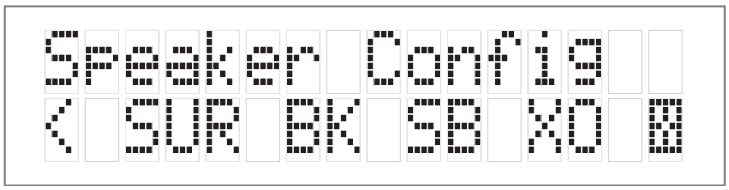


Figure 12: Highlight "X" to exit

In order to fully enjoy the capabilities of the SP1.7 you or your dealer must first set-up and calibrate the SP1.7. This is a critical step in insuring that all your loudspeakers are properly designated within the unit and that all levels and delays are properly set.

To accomplish this process the following tools are needed:

1. Tape measure or other means of determining the distance of each speaker from the chosen listening positions.

2. Sound Level Meter. This device insures that all loudspeaker levels are precisely matched and set accurately. This step cannot accurately be done by ear, a test instrument should be used to ensure proper calibration. (The Radio Shack Analog SPL meter is inexpensive and eminently suitable for this task. Your dealer may have one.)

IMPORTANT: When using the Pink Noise generator within the SP1.7 for speaker level calibration, the salient point is that all channels measure equal dB. After pushing the test button, the pink noise will start in the front left speaker. Record the dB level from this speaker (with the level trim value at 0 dB on the LCD Display or on the Video Monitor when using the Bryston SPV-1), and adjust all the others to match it. It is not critical to reach some specific dB level (ex. 85 dB), it is more important that all channels are at equal levels.

Please Note: If for any reason you are not sure that you can accomplish this calibration task or have any doubts as to how it should be done, please contact your dealer or Bryston technical support BEFORE attempting this process. Most Bryston Dealers can provide this service. Please contact your dealer for their policies and procedures in this regard.

Explanation of 'Saved Settings per Source' Feature

The SP1.7 will remember different mode settings for each source. Every time a source is engaged it will recall the following settings:

Digital Status
Listening Mode (Surround, THX, Stereo, Mono)
Surround Mode
Bypass Status
Subwoofer Level
Rear Channel Levels
Back Channel Levels
Speaker Configuration
EX Control
ES Control

To save these settings, make the preferable mode changes and adjustments per source, then press the SAVE button on the SP1.7 remote control before switching to another input.

NOTE 1: You must set the speaker configuration manually for each input, within the LCD setup menu.

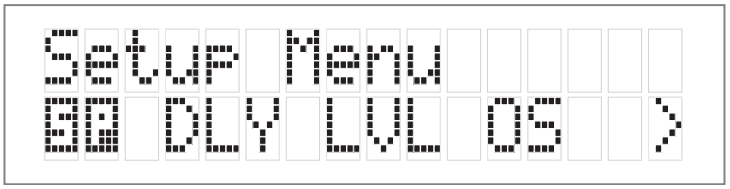
NOTE 2: The Setup Test Noise mode will overwrite Rear and Sub level settings for ALL inputs.

Setting the Speaker Configuration

Before calibrating levels you must first tell the SP1.7 about your loudspeaker configuration. To do this:

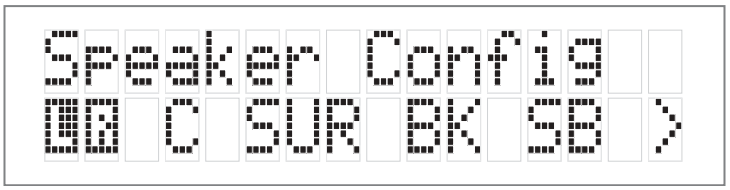
1. First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT).

Figure 13: Highlight "SP" in the Setup Menu



2. Next move the cursor to "SP". Hit 'SELECT' - You are now in the Speaker Menu.

Figure 14: Highlight "LR" in the Speaker Menu



3. Move the cursor to the speaker(s) you want to change the configuration for using the arrow keys (LR, C, SUR, BK, SUB). Hit 'SELECT'.

The options available in this menu are:

For LEFT/RIGHT (LR) you can select SMALL OR LARGE
For CENTRE (C) you can select SMALL, LARGE or NONE
FOR SURROUNDS (SUR) you can select SMALL, LARGE or NONE
FOR BACK (BK) you can select NONE, ONE or TWO
FOR SUBWOOFER (SUB) you can select YES or NO

The SP1's default factory settings as shipped are:

Left/Right = LARGE
Centre = NONE
Surrounds = SMALL
Back = NONE
Subwoofer = YES.

If only one back speaker is chosen, the signal will be present on the BACK LEFT OUTPUT only.

4. Once you have completed selecting the settings that match your particular speaker systems please move the cursor to the (X) and press SELECT to exit this menu.

NOTE: LARGE VS SMALL SPEAKER SETTINGS:
It is very important that you understand what is meant by the LARGE and SMALL settings in this menu. They do not refer to SIZE, but to the ability of the particular loudspeaker system to handle low bass/low frequency information. It is very important that you consult your loudspeaker providers instruction manual or the company regarding the capabilities of your particular system with regard to low bass/low frequency reproduction. Please note that all THX certified loudspeaker systems are SMALL since a subwoofer is a part of any THX certified loudspeaker system. It is strongly recommended that you consider using a subwoofer for any system which you expect to effectively handle the low frequency dynamics of modern motion picture soundtrack sources such as DVD or HDTV feeds, and many other discrete multi-channel programming sources. If in any doubt choose small, especially if you are using a subwoofer, since this will insure that all the appropriate low frequency information is directed to the subwoofer where it can be most effectively handled.

Explanation of 'Xtra Bass' Mode

With any 2-channel material, there is no LFE (Low Frequency Effects, .1 channel) track. So, if your front speakers are defined as 'Large', the subwoofer will be inactive because no bass is being directed there. The Xbass mode allows the subwoofer to be active, even if the front speakers are full-range. You may find this is particularly useful for Pro Logic movie soundtracks.

In the Speaker Setup Menu, under the SUB heading, there are 3 choices:

1. None: no subwoofer attached to the system.

2. Yes - Xbass Off: subwoofer is active, but only active with LFE tracks if the front speakers are full-range

3. Yes - Xbass On: subwoofer is active in system, in addition to full-range speakers.

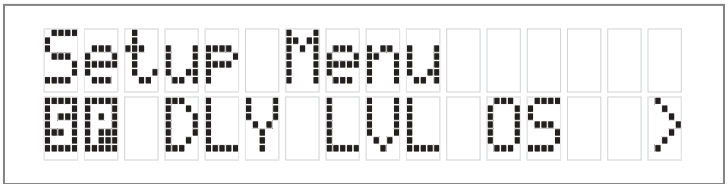
NOTE 1: the Xbass settings only show up in the menu if the front speakers are defined as 'Large'. Otherwise, there are only two options, Yes and None.

NOTE 2: Xtra Bass operation is only available with Stereo, Stereo5, Party, Pro Logic, PLII Music, and PLII Movie modes.

Setting the Speaker Crossover Frequency

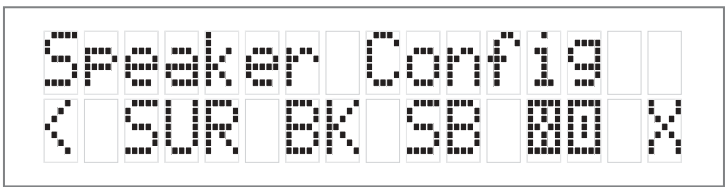
1. First enter the main menu by pressing on any one of the menu buttons (< , > or SELECT).

Figure 15: Highlight "SP" in the Setup Menu



2. Next move the cursor to 'SP'. Hit 'SELECT' - You are now in the Speaker Menu.

Figure 16: Highlight "XO" in the Speaker Config Menu



3. Next move the cursor to ‘XO’. Hit ‘SELECT’ - You are now in the Crossover Menu. The options available in this menu are either NONE or 60 Hz to 220 Hz in 10 Hz increments. The SP1.7’s default factory setting as shipped is the THX standard 80 Hz crossover frequency.

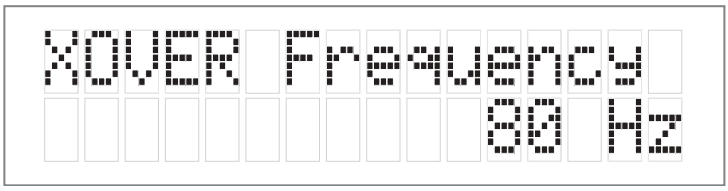


Figure 17: Change the Crossover Frequency

4. Once you have selected the desired crossover frequency, press SELECT to exit this menu and return to the Speaker Config menu. The selected frequency is common to all speakers defined as ‘SMALL’. Only one global crossover value is available.

NOTE 1: The crossover action is only applied to speakers defined as ‘SMALL’ in the speaker configuration menu.

NOTE 2: If NONE is selected for the crossover frequency, the LFE signal (Low Frequency Effects channel) will be presented with no cut-off frequency. LFE signals can be up to 120 Hz in bandwidth, which replicates the studio mix.

Setting the Channel Delays

In this step you will need to measure within one foot the distances from your chosen listening/viewing position to the various loudspeaker locations in your system. You will need the tape measure or other means of making these measurements. You should record this data for future reference.

1. Now, make a measurement from the chosen seated position to each loudspeaker.

2. Next, enter the main menu by pressing on one of the menu buttons on the SP1.7 front panel. Move the cursor to “DLY”. Hit ‘Select’ - You are now in the Delay Menu. The SP1.7 automatically calculates the required delay time per speaker using the data entered as distance from the listening position. Delays are implemented using DSP RAM and have a maximum value.

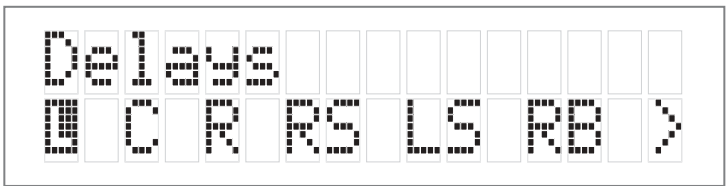


Figure 18: Delays Menu

IMPORTANT: It is recommended that the closest speaker is entered first. The SP1.7 will calculate the maximum allowable distance from the listening position for the remaining speakers. Please note that delay is represented in feet. For reference, One foot (0.3048 meters) = approximately 1 millisecond of delay.

3. Move the cursor to the speaker you want to set the distance/delay for (L C R RS LS RB LB SB). Hit Select. Now you can adjust the Delay value which is equivalent to the distance you measured for the selected speaker using the arrow buttons. Set the delay for each speaker in your system to the nearest foot/meter. Rounding up is OK. Remember that if one back speaker is selected, the Left Back output is used to set the delay.

4. Hit SELECT or [X] Exit when finished.
   The SP1.7's default factory settings as shipped are 10 feet to every speaker, resulting in zero overall delay.

Calibrating and Setting Levels / Channel to Channel Balance.

1. Position the Sound Level Meter at the Centre point of your listening area, at average ear height [approximately 40 - 46 inches {102 - 117 cm.} with its microphone positioned vertically (pointing at the ceiling). DO NOT aim the sensing microphone at the speakers, as this will produce inaccurate level indications.

2. Using the SP1.7 Remote, press and hold for approximately 3-5 seconds the key labeled "TEST".

   IMPORTANT: The Test-Noise Mode can only be initiated from the SP1.7 remote, and not from the front panel.

   The shaped pink-noise test signal will begin with the left-front loudspeaker. If the signal does not appear in this speaker please stop the process and check your wiring and connections for proper configuration.

   IMPORTANT: When using the Pink Noise generator within the SP1.7 for speaker level calibration, the salient point is that all channels measure equal dB. After pushing the test button, the pink noise will start in the front left speaker. Record the dB level from this speaker (with the level trim value at 0 dB on the LCD Display), and adjust all the others to match it. It is not critical to reach some specific dB level (ex. 85 dB), it is more important that all channels are at equal levels.

3. Hit the "TEST" button again to sequence the noise to the next speaker.
   The sequence is L -> C -> R -> RS -> RB -> LB -> LS -> SUB -> EXIT.

4. Using the volume up/down arrows on the remote or the arrow keys on the SP1.7 adjust the level of the noise for each speaker so that it matches the front left channel noise (dB) level on the Sound Level Meter.

5. When the cycle is complete, the test noise signal will end, and the unit will switch back to the previous mode. If any output is unused (as defined by 'NONE' in the Speaker Configuration Setup), the noise sequence will automatically skip to the next speaker in the sequence.

Setting Channel Levels without Pink Noise

If you wish to adjust the speaker level trims without using the pink-noise test signal, this can be done from the Front Panel menu system.

1.`First enter the main menu by pressing on any one of the menu buttons on the SP1.7 front panel (< - > or SELECT).

2. Next move the cursor to “LVL”. Hit ‘SELECT’ - You are now in the Level Trim Menu.

3. Move the cursor to the speaker(s) you want to change the level for using the arrow keys (L, C, R, RS, LS, RB, LB, SUB). Hit ‘SELECT’. Now you can adjust the Level for the selected speaker using the arrow buttons.

4. Hit ‘SELECT’ when finished, and repeat Step 3 to change the Level Trim for any of the other speakers.

Setting the THX Subwoofer Limiter or “Bass Peak Level Manager”

To diminish the chance that your subwoofer will overload from the large amount of bass, often present in the LFE channel the system uses a Peak Management circuit which works with the data you supplied during speaker setup to help match the subwoofer output to your specific subwoofer’s capabilities. Please note that the factory default for the BLPM is -14 dB since the capabilities of your specific subwoofer are unknown. In the SP1.7 setup and calibration section above, the final step you should have performed was to set the BLPM for your subwoofer’s specific capabilities.

Setting the BPLM with Pink Noise

1. Enter the main menu by pressing on one of the menu buttons. Move the cursor to “OS”. Hit ‘Select’ - You are now in the Other Settings (Optical/THX) Menu.

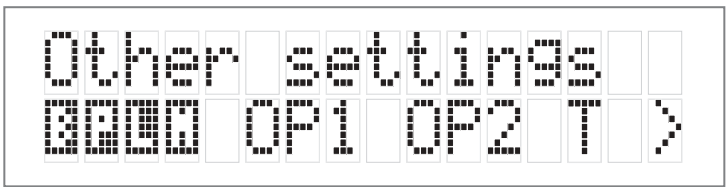


Figure 19: Highlight “BPLM” in the Other Setting Menu

2. Move the cursor to ‘BPLM’. Hit Select. [BPLM=Bass Peak level Manager]
You will see the following screen.

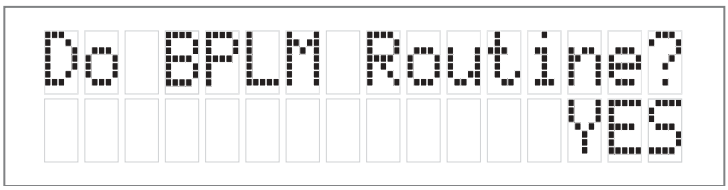
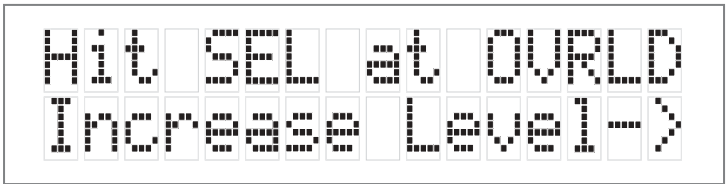


Figure 20: BPLM Routine Choice

3. Hit ‘SELECT’ and you will see the adjustment screen picture below appear, and you will hear a low level Pink Noise signal coming from your subwoofer and/or large speakers.

Figure 21: BPLM Routine for level setting



Now you can adjust the value of the subwoofer limiter (-24 to 0 dB). Slowly increase the level by pressing the “>” button (display counting up from -24) until you hear overload/ distortion/bottoming/popping from your subwoofer(s). When you do, reduce the value shown by 1dB and Hit ‘SELECT’ to save the setting. You can always return to this menu to make further adjustments if needed.

Setting the BPLM without Pink Noise

To adjust the BPLM setting without running the Noise routine, Enter the BPLM as above, but when the SP1 prompts “Do BPLM Routine?”, use the arrow keys to select ‘NO’ and hit ‘SELECT’. This will bring up the numeric value of the BPLM setting without the noise signal. You can now adjust the value using the arrow keys, and hit ‘SELECT’ when finished.

Caution: If the BPLM is set to “OFF” or “0”, the Bass Limiting function is disabled. In this case, you may run the risk of speaker damage due to bass overload. Please be sure that your speaker system can handle high bass levels before disabling the BPLM.

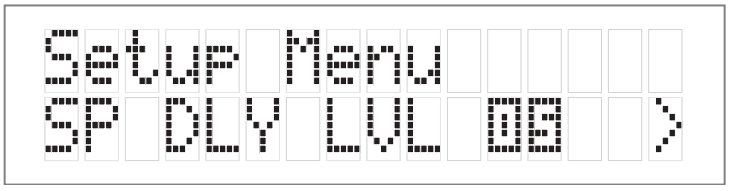
Enabling DTS-ES 6.1 Decoding

DTS-ES Discrete 6.1 will only operate on DTS source bitstreams that have a discrete sixth channel encoded. If the Back Speakers are turned on via the speaker config menu (See Speaker config on page 19.), and the input bitstream permits, DTS-ES Discrete 6.1 will be detected and enabled automatically.

DTS-ES Matrix 6.1 processing creates back channel material from material contained in the surround channels of DTS 5.1 bitstreams. Some DTS material has been formatted so that when DTS-ES Matrix 6.1 processing is applied, specific material will be placed on the back channels, while other specific material remains on the surround channels. To control when DTS-ES Matrix 6.1 processing will be applied, change the ES Control setting as follows:

1. First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

Figure 22: Highlight “OS” in Setup Menu



2. Next move the cursor to “OS”. Hit ‘SELECT’ – you are now in the ‘Other Settings’ menu.

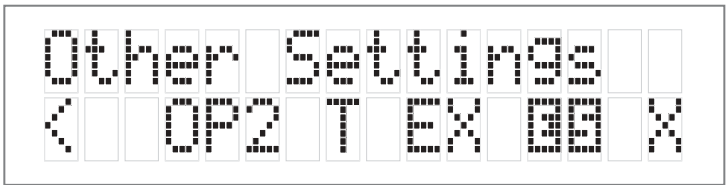


Figure 23: Hightlight “ES” in Other Settings Menu

3. Move the cursor to “ES”. Hit ‘SELECT’ – you can now change the ES Control setting.

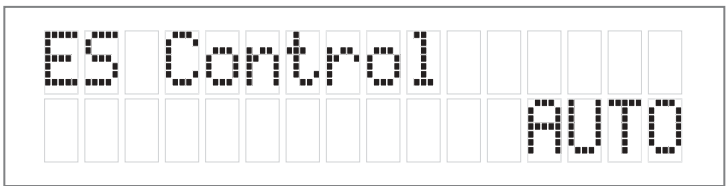


Figure 24: Change the “ES” Control setting

The options available in this menu are:
DISABLE – DTS-ES will not be decoded
ON – DTS-ES Matrix will be forced on for all DTS 5.1 channel input bitstreams, if the back channels are enabled.
AUTO – DTS-ES Matrix will be decode if the incoming DTS bitstream is flagged as having DTS-ES encoded content, and if the back channels are enabled.

Enabling THX Surround EX™ Decoding

THX Surround EX™ processing creates back channel material from material contained in the surround channels of Dolby Digital 5.1 bitstreams. Some Dolby Digital material has been formatted so that THX Surround EX™ processing is applied, specific material will be placed on the back channels, while other specific material remains on the surround channels. To control when THX Surround EX™ processing will be applied, change the EX Control setting as follows:

1. First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

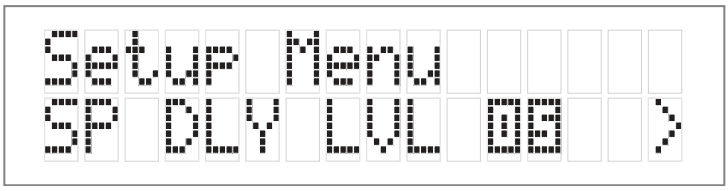


Figure 25: Highlight “OS” in Setup Menu

2. Next move the cursor to “OS”. Hit ‘SELECT’ – you are now in the ‘Other Settings’ menu.

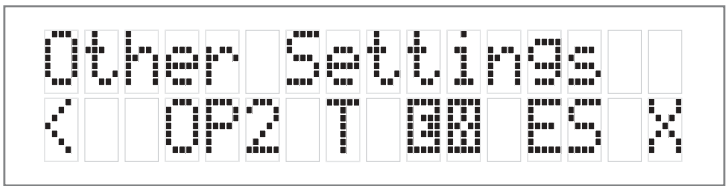
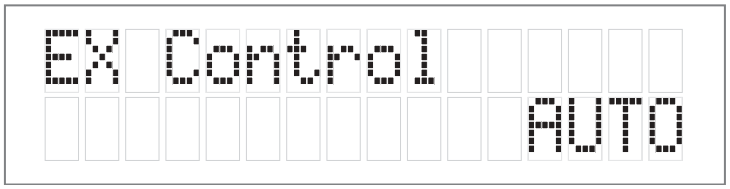


Figure 26: Highlight “EX” in Other Settings Menu

3. Move the cursor to “EX”. Hit ‘SELECT’ – you can now change the EX Control setting.

Figure 27: Change “EX” Control Setting



The options available in this menu are:

DISABLE – THX Surround EX™ will not be decoded
ON – THX Surround EX™ will be forced on for all Dolby Digital 5.1 channel input bitstreams, if the back channels are enabled.
AUTO – THX Surround EX™ will be decoded if the incoming Dolby Digital bitstream is flagged as having THX Surround EX™ encoded content, and if the back channels are enabled.

NOTE: THX Surround EX™ is only available with the THX listening mode (see page 9).

For more information on THX Surround EX™, visit www.thx.com

Changing Dolby PLII Music Settings

Dolby Pro Logic II is the next generation in Dolby Surround decoding. It is designed specifically to decode all existing Dolby Surround programs and provide improved spatiality and directionality of sounds. Through the use of an elegant new approach to matrix surround decoding and the decoding of stereo, full-bandwidth surround outputs, Pro Logic II decoding effectively bridges the gap between Pro Logic and discrete Dolby Digital 5.1 soundtracks.

Pro Logic II is also designed for use with unencoded stereo music recordings. The listener is drawn into a three-dimensional space, rather than hearing a flat, two-dimensional presentation. This not only helps develop a more involving soundfield, but also solves the narrow “sweet spot” problem of conventional stereo reproduction. All of these benefits are provided using the same “3/2” speaker configuration consumers have been using with Pro Logic since 1988.

Pro Logic II follows in the footsteps of Pro Logic and Dolby Digital 5.1-channel decoding. In many key respects, Pro Logic II fits into this environment seamlessly. Electrically, the parameters of headroom, reference level, channel calibration, output trim controls, noise sequencer, and master volume control are all unchanged relative to a Pro Logic decoder within a 5.1-channel Dolby Digital decoder. The main difference is that besides the stereo surround outputs, Pro Logic II provides some new, optional modes to enhance music playback.

PLII Film This is the preferred decoding method for watching movies with matrix surround encoding. The centre width and dimension variables are set and optimized for this application, and cannot be adjusted. No filters are present on the surround channels, and autobalance is operational.

PLII Music This mode can enhance normal stereo music recordings, offering a wider soundstage and enhanced spatial effects. This offers user control over the 1. Center Width, 2. Dimension and 3. Panorama. PLII Music also applies a mild high-frequency shelf filter to the surround channels for a more natural soundfield. Autobalance is disabled.

1. Dimension Control. Allows the user to gradually adjust the soundfield either towards the front or towards the rear. This can be useful to help achieve a more suitable balance from all the speakers with certain recordings.

2. Center Width Control. Allows variable adjustment of the center image so it may be heard only from the center speaker, only from the left/right speakers as a "phantom" center image, or various combinations of all three front speakers. For home users, it allows improved blending of the center and main speakers, or to control the sense of image width, or "weight."

3. Panorama Mode. Extends the front stereo image to include the surround speakers for an exciting "wrap around" effect with side wall imaging.

To change the PLII Music settings:

1. First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

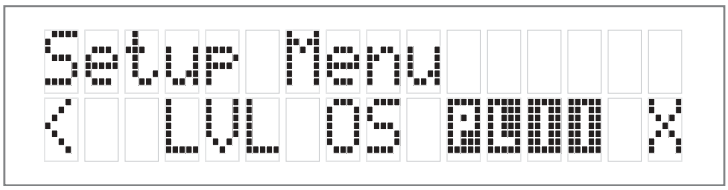


Figure 28: Highlight "PLII" in the Setup Menu

2. Next move the cursor to "PLII". Hit 'SELECT' – you are now in the 'PLII Music' menu.

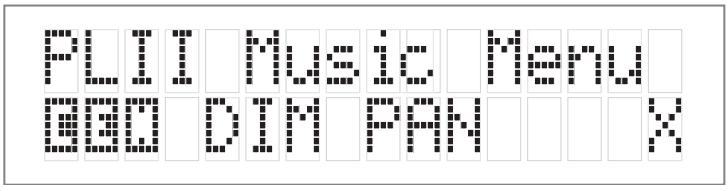
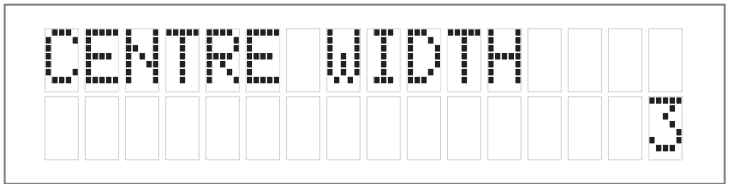


Figure 29: HIghlight "CEN" in the PLII Music Menu

3. Move the cursor to the setting you want to change. The options are:
   CEN – center width (0 to 7; default 3)
   DIM – dimension (-3 to +3; default 0)
   PAN – panorama (YES or NO; default NO)

Hit ‘SELECT’ – you can now change the chosen PLII setting.

Figure 30: Change the PLII Centre Width Setting



Changing DTS NEO:6 Settings

Neo 6 provides up to six full-band channels of matrix decoding from stereo matrix material. Users with 6.1 and 5.1 systems will derive six and five separate channels respectively, corresponding to the standard home-theater speaker layouts. (The “.1” subwoofer channel is generated by bass management in the preamp or receiver.) Neo:6 also offers a music mode to expand stereo non-matrix recordings into the five- or six-channel layout, in a way which does not diminish the subtlety and integrity of the original stereo recording.

“Center Image” is a variable in Neo:6 music mode only.

Neo:6 derives a center channel from two-channel material. In cinema mode, for Left/Right film soundtracks, sounds steered to the center are subtracted from the left and right channels. In music mode, the intent in the front channels is less one of steering and more one of stabilizing the front image by augmenting it with a center channel, while preserving the original perspective of the stereo mix. Therefore the derived center is never fully subtracted from the left and right channels.

“Center Image” is the factor controlling the amount of subtraction. It varies between 0 and 0.5 in steps of 0.1 and the default value is 0.2.

When Center Image = 0, the factor is zero and nothing is subtracted from the left and right channels. When Center Image = 0.5, the center channel is subtracted from the left and right channels at half level (-6 dB) for each channel. The signal level sent to the center channel output is not affected by Center Image.

This control should be set based on room layout and personal preferences. A setting of 0 allows the left and right channels to pass through unaltered from the stereo mix. A setting of 0.5 gives more center channel dominance, which is particularly desirable if listeners are located well off-center. At any setting, the center speaker anchors the image.

To change the Center Image:

1. First enter the main menu by pressing on any one of the menu buttons (< - > or SELECT)

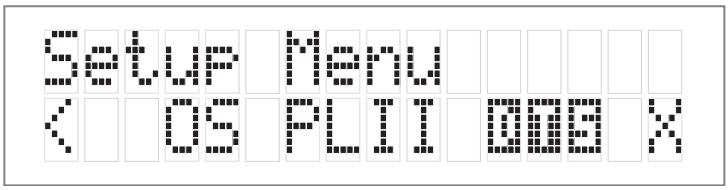


Figure 31: Highlight "DTS" in Setup Menu

2. Next move the cursor to "DTS". Hit 'SELECT' – you are now in the 'DTS Settings' menu.

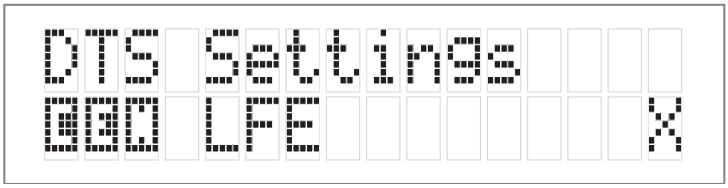


Figure 32: Highlight "CEN" in DTS Settings Menu

3. Move the cursor to 'CEN' Hit 'SELECT' – you can now change the NEO:6 center imgage setting. (0 – 0.5)

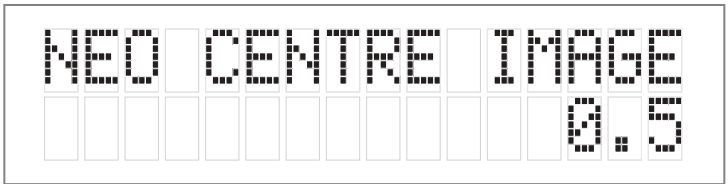


Figure 33: Change the NEO:6 Centre Image setting

Acknowledgements

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APPENDIX A - SP1.7 Surround MODES

Pressing the ⟳ MODE button will illuminate the LED and let you sequentially select one of the many available decoding modes for 2 channel signals. These special modes are designed to expand your enjoyment of almost any 2 channel music source and many other 2 channel signals. You are encouraged to experiment with the options on various sources. Not all will supply something you may like, but there are so many variables that it does pay to take a few moments to listen to the options. The custom SP1.7 Surround Modes use a set of DSP algorithms to create a set of simulated signals using the original left and right 2 channel data and feeds these to the to centre and surround speakers.

Surround Modes

Hall. This Sound Field Mode emulates a medium or large concert hall. It provides a longer reverberation time than other modes and gives the effect that music is heard at a greater distance from the performers. It is ideal for orchestral classical music and light orchestral music, such as that found on many film soundtrack albums, but this mode will generally sound a bit muddy on rock or pop music.

Theatre. This Sound Field Mode simulates a room larger than a club, and it is intended to simulate what you would hear in the front rows in a medium-size theatre. The reverberation here is not overly obtrusive, since a theatre is intended for clarity of speech. This mode is suited for opera, rock, easy listening music, and any music you might hear in a theatre.

Stadium. This Sound Field Mode provides a prominent "slap echo," emanating largely from the rear, and it gives a lively effect especially on solo instruments such as bass guitar. This mode is unsuitable for speech as the echo destroys intelligibility. The sound is "big" but slightly artificial — it is suitable for stadium rock, and other music that one would hear in a large stadium environment.

Club. This Sound Field Mode is intended to simulate being fairly close, around 10 feet away, in a small intimate club setting with a moderate amount of reverberation that does not destroy clarity. The result is a bit colored for speech due to the small room size, but it is quite suitable for jazz groups, cabaret, small-venue rock 'n roll, and a small disco venue where dance music is played. This mode can also be used for classical chamber music and solo instrumental music of most kinds.

Church. This Sound Field Mode simulates a large, spacious acoustic space with a very long reverberation time. It is well-suited to organ music, choral music, and New Age music. It is too reverberant for most other kinds of material, but it is very spacious for material it is suited to.

Natural. This mode enhances the basic stereo reproduction by using the inherent acoustics recorded within the source material. If the source material was surround encoded or recorded in an acoustically oriented manner (such as a lot of classical music and many live recordings) this mode can provide truly spectacular effects and an enhanced sense of the space in which the music was being performed.

Party. The Party (Five-Channel Mono) Mode converts stereo input to a mono signal which is then distributed to the five satellite channels.

Stereo5. The Stereo5 (Five-Channel Stereo) Mode converts stereo input to surround sound. The stereo signal is distributed to the five satellite channels, creating a giant stereo image in your listening space.

(Please note that the apparent effect of the Surround Mode can be adjusted by altering the delay parameters and channel volume of the centre, surrounds and back channel(s), using the appropriate menus).

NOTE: These music modes do NOT utilized the back surround speakers.

Remember there really are no “correct” settings that will work equally well for all kinds of music. You may need to adjust the parameters and mode depending on the music material.

Table of all available surround modes.

Signal	Listening Mode	Surround Effect	EX control	ES control	Line1 LCD	Line2 LCD SIGNAL:
DD 5.1	Surround	N/A	OFF	any	DD DIGITAL	DD D 3/2.1
DD 5.1	THX	N/A	OFF	any	DD DIGITAL +THX	DD D 3/2.1
DD 5.1	THX	N/A	ON, Auto	any	THX Surround EX	DD D 3/2.1
DD 5.1	Stereo	N/A	any	any	STEREO	DD D 3/2.1
DD 5.1	Mono	N/A	any	any	MONO	DD D 3/2.1
DTS 5.1	Surround	N/A	any	OFF	DTS	DTS 3/2.1
DTS 5.1	THX	N/A	any	OFF	DTS +THX	DTS 3/2.1
DTS 5.1	Surround	N/A	any	ON	DTS + NEO:6	DTS 3/2.1
DTS 5.1	THX	N/A	any	ON	DTS + NEO:6 +THX	DTS 3/2.1
DTS 5.1	Stereo	N/A	any	any	STEREO	DTS 3/2.1
DTS 5.1	Mono	N/A	any	any	MONO	DTS 3/2.1
DTS-ES Discrete	Surround	N/A	any	OFF	DTS	DTS 3/2.1
DTS-ES Discrete	THX	N/A	any	OFF	DTS + THX	DTS 3/2.1
DTS-ES Matrix	Surround	N/A	any	OFF	DTS	DTS 3/2.1
DTS-ES Matrix	THX	N/A	any	OFF	DTS + THX	DTS 3/2.1
DTS-ES Discrete	Surround	N/A	any	ON,Auto	DTS-ES Discrete	DTS 3/2.1
DTS-ES Discrete	THX	N/A	any	ON,Auto	DTS-ES Dsct +THX	DTS 3/2.1
DTS-ES Matrix	Surround	N/A	any	ON,Auto	DTS-ES Matrix	DTS 3/2.1
DTS-ES Matrix	THX	N/A	any	ON,Auto	DTS-ES Mtrx +THX	DTS 3/2.1
any 2.0	Surround	Party	any	any	PARTY	xx 2/0.0
any 2.0	Surround	Hall	any	any	HALL	xx 2/0.0
any 2.0	Surround	Church	any	any	CHURCH	xx 2/0.0
any 2.0	Surround	Theatre	any	any	THEATRE	xx 2/0.0
any 2.0	Surround	Club	any	any	CLUB	xx 2/0.0
any 2.0	Surround	Stereo5	any	any	STEREO5	xx 2/0.0
any 2.0	Surround	PLII Movie	any	any	DD PLII Film	xx 2/0.0
any 2.0	THX	PLII Movie	any	any	DD PLII Film+THX	xx 2/0.0
any 2.0	Surround	PLII Music	any	any	DD PLII Music	xx 2/0.0
any 2.0	Surround	DTS NEO Movie	any	any	NEO:6 Cinema	xx 2/0.0
any 2.0	THX	DTS NEO Movie	any	any	NEO:6 Cinema+THX	xx 2/0.0
any 2.0	Surround	DTS NEO Music	any	any	NEO:6 Music	xx 2/0.0
any 2.0	Surround	Pro Logic	any	any	DD PRO LOGIC	xx 2/0.0
any 2.0	THX	Pro Logic	any	any	DD PL + THX	xx 2/0.0
any 2.0	Surround	No Effect	any	any	No Effect	xx 2/0.0
any 2.0	THX	No Effect	any	any	STEREO + Re-EQ	xx 2/0.0
any 2.0	Stereo	N/A	any	any	STEREO	xx 2/0.0
any 2.0	Mono	N/A	any	any	MONO	xx 2/0.0
						xx = DD, DTS or PCM

APPENDIX B - THX INFORMATION

Below is a summary of issues and information related to the proprietary and patented THX processing incorporated used in the SP1. The available space cannot include all the available information on this topic. Therefore, if you want more information or wish to research the topic in more detail please use the THX website at WWW.THX.COM.

When you choose the THX option for surround decoding modes within the SP1.7, by pressing the THX button on the front panel or the remote, an additional "post-processing" method is activated. The additional signal processing used in this mode is the result of extensive research, testing and refinement by the technical and engineering staff at LucasFilm, Ltd. All movie soundtracks regardless of their original encoding format (Dolby Digital, Dolby Pro-Logic, DTS, Stereo or Mono) can benefit from THX post-processing.

NOTE: THX is only available with movie modes PLII Film, NEO:6 Cinema, Pro Logic, Dolby Digital, and DTS as per THX licensing agreements.

The THX mode would not normally be activated for music or movies that were made specifically for television or other broadcast shows such as sports programming. The THX processing, designed to compensate for large room mixing environments is not required for these programs because they are normally mixed/post-produced in small room environments, as opposed to the large room environments normally used for theatrical motion picture mixing/post-production.

The SP1's THX mode adds additional DSP post-processing to either the Dolby or DTS processing already in place to help create a more precise match between the sound produced within a commercial motion picture theater and the sound produced in your residential 'theater'.
THX's research shows that this is necessary because, all of the multi-channel film sound formats were originally designed and spectrally balanced for use within large commercial movie theaters. Moreover, the specially equipped and designed theater used by the sound mixing professionals to produce the final theatrical audio track on any film (called a 'dubbing stage') is also considerably larger than your 'home theater' since it was created to replicate the environment of a typical commercial cinema space, not your home theater space.
It is in those "dubbing stages" that the dialogue, sound effects and music are all individually recorded and mixed to a six (5.1) or four channel(Pro- Logic) soundtrack for release in commercial movie theaters. This is the same soundtrack that is later released on videotape and DVD for playback in a Home Theatre system.
During their research, the THX engineers identified the fundamental tonal and spatial errors created when Theatre environment film sound tracks are reproduced in residential spaces.
The SP1.7, contains special processing designed by THX to correct those errors and restore the appropriate tonal and spatial balance to a movie soundtrack, so that you can hear what the film's producer/director intended.

EXAMPLE HOOK-UP DIAGRAMS

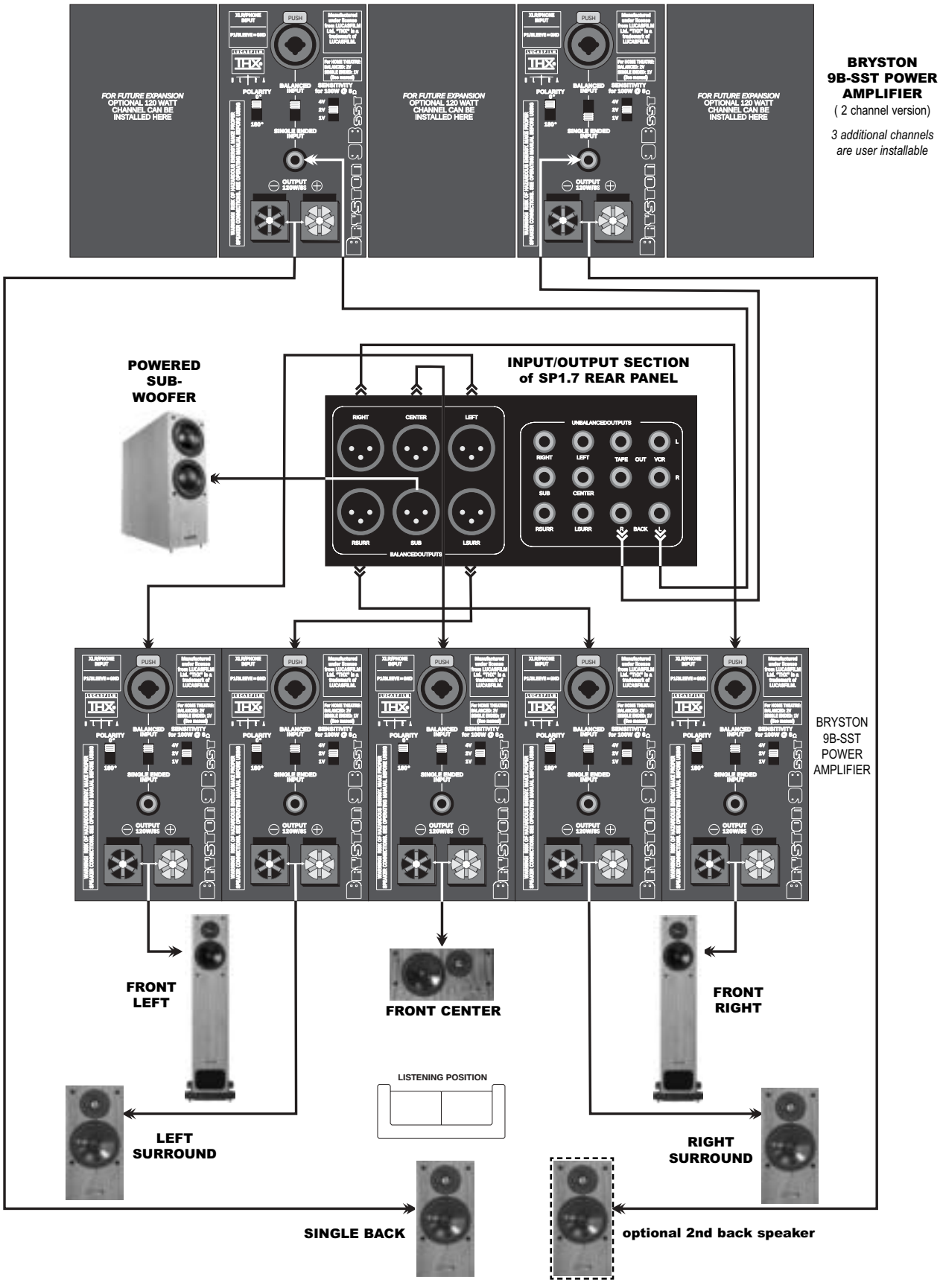


Figure 34 – SPV-1, SP1.7, 9B, and a 2ch9B or 3b

SP1.7 SPECIFICATIONS

Inputs

Analog Audio:	Six stereo (RCA) pairs, One 5.1 channel (RCA) input
Digital:	4 coaxial (RCA) 75 Ohms, 2 Optical (TOSLINK?), conforms to S/PDIF standard. Pro version 1 AES/EBU input (XLR) 110 Ohms
Infrared:	1 mini phone jack
RS-232:	D9 connector (bidirectional)

Outputs

Analog Outputs:	Left, Centre, Right, Right Surround, Left Surround, and Subwoofer on 6 unbalanced (RCA) and 6 balanced (XLR). 2 stereo (RCA) pairs of Record Outputs. 1 pair (RCA) Surround Back outputs
Trigger:	One 12V on/off trigger, One 12V programmable trigger, to source 80mA total.

Remote

30 button, Hand-Held, Infrared remote control unit operates with two AAA batteries (included).

Performance Specifications

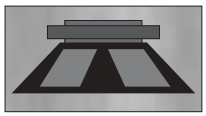
A/D Conversion:	24-Bit, 48kHz Delta-Sigma
D/A Conversion:	24-Bit, 96kHz Delta-Sigma
DSP Engine:	Motorola 56367
Power Supply:	Dual, Linear, Toroidal
Frequency Response:	20Hz to 20kHz +/- 0.25 dB
THD+Noise:	Less than 0.006% in DSP modes; Less than 0.0025% in Bypass mode 20Hz to 20kHz at maximum output level.
Signal-to-Noise Ratio:	105dB in DSP Modes; 110dB in 2ch Bypass Mode ; 22kHz bandwidth, Ref. 1kHz at maximum output level
Input Level:	2 Vrms in DSP modes; 4 Vrms in Bypass Mode
Input Impedance:	50kOhms
Output Level:	8 Vrms (16 Vrms Balanced) in DSP Modes; 10 Vrms (20 Vrms Balanced) in Bypass Mode.
Output Impedance:	110 Ohms
Bass Management:	2nd Order HPF(x5), 4th Order LPF; 60 – 220 Hz Crossover Freq.

Physical Specifications

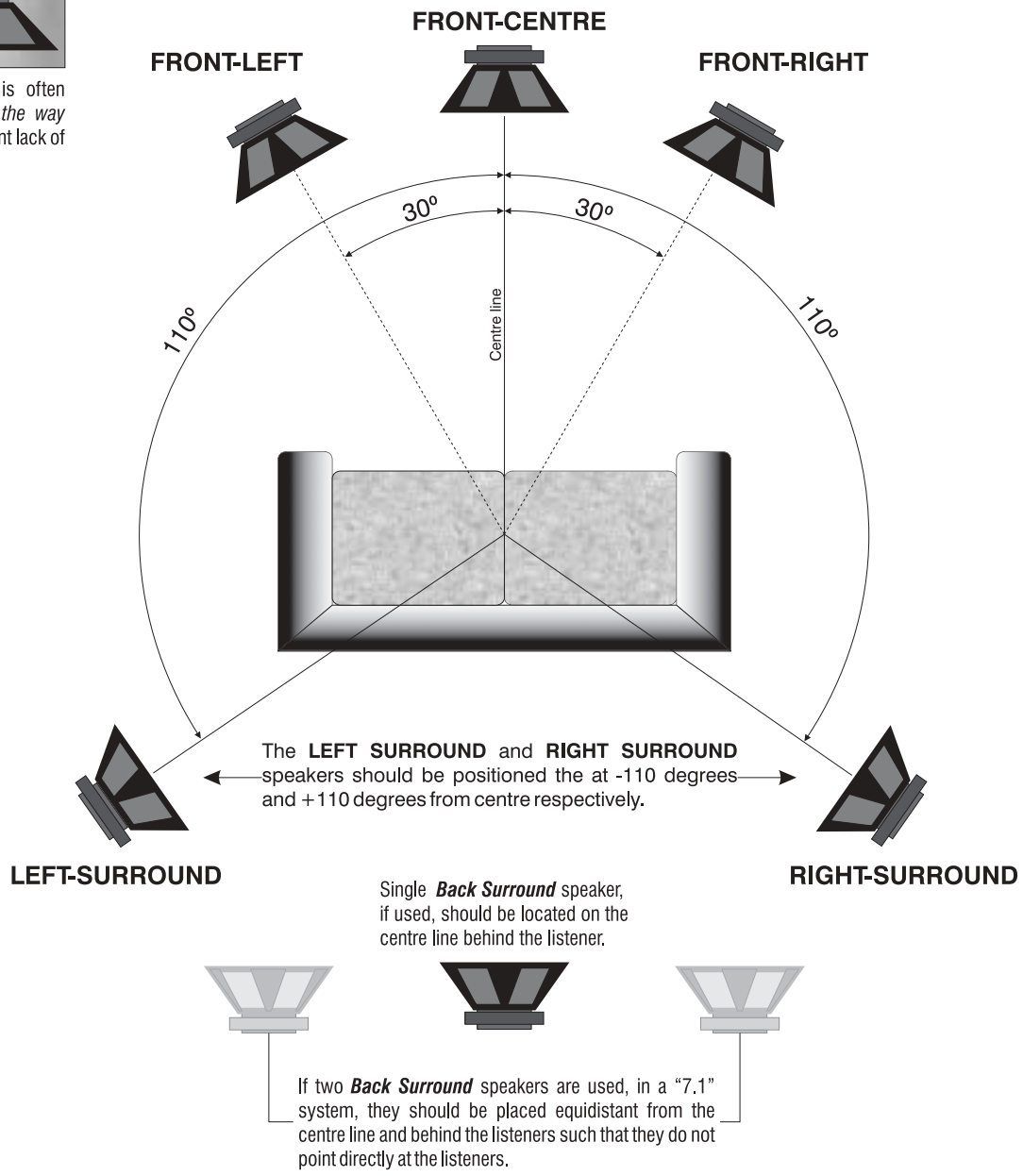
Power Requirements	100VAC, 115VAC, and 230VAC models. 200 VA. IEC detachable power cord (included)
Dimensions:	17” W x 13.5” D x 3.8” H; rackmount 19” W x 13.5” D x 3.5” H
Weight:	approx 22 lbs (10 kg)
Chassis Temp:	0 to 50 deg Celsius

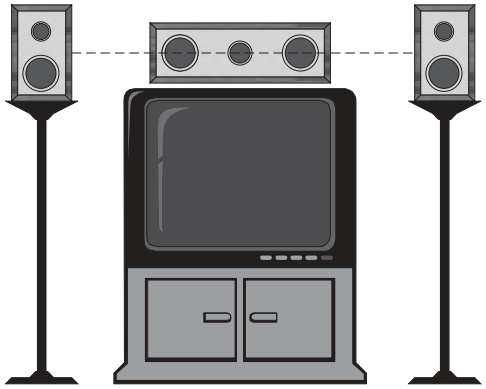
Specifications subject to change without notice.

SUGGESTED SURROUND SPEAKER PLACEMENT



A **sub-woofer** is often located *out of the way* due to its inherent lack of directionality


FRONT-CENTRE
FRONT-LEFT
FRONT-RIGHT
30°
30°
110°
110°
Centre line
The **LEFT SURROUND** and **RIGHT SURROUND** speakers should be positioned the at -110 degrees and +110 degrees from centre respectively.
LEFT-SURROUND
RIGHT-SURROUND
Single ***Back Surround*** speaker, if used, should be located on the centre line behind the listener.
If two ***Back Surround*** speakers are used, in a "7.1" system, they should be placed equidistant from the centre line and behind the listeners such that they do not point directly at the listeners.



VERTICAL PLACEMENT OF SPEAKERS

The front speakers are normally placed at ear level, but where the front-centre speaker is placed on top of the television or video monitor the front-left and front-right speakers should be elevated to be in-line with the centre speaker

Figure 35 – Suggested Surround Speaker Placement